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COOPERATIVE STATE-FEDERAL STUDY OF POLLUTION OF NAVIGABLE WATERS - PUGET SOUND, STRAIT OF JUAN DE FUCA AND THEIR TRIBUTARIES AND ESTUARIES, STATE OF WASHINGTON

Federal Water Pollution Control Administration
Portland, Oregon

30 June 1966

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PROGRESS REPORT

WASHINGTON STATE ENFORCEMENT PROJECT

October 1, 1965 - June 30, 1966

U. S. Department of the Interior
Federal Water Pollution Control Administration
Northwest Regional Office, Portland, Oregon
and
Washington State Pollution Control Commission
Olympia, Washington

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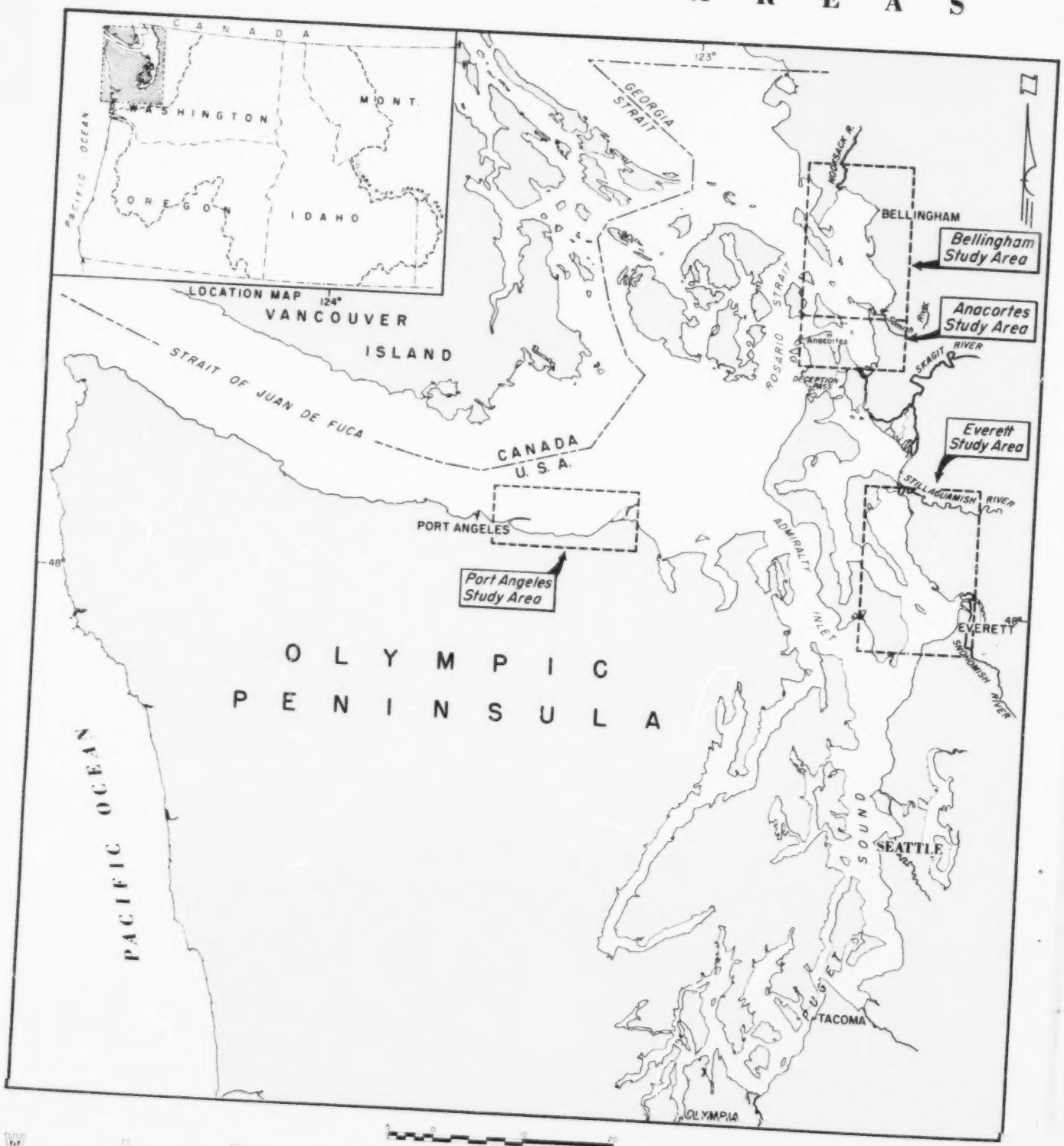
PUGET SOUND

AND STUDY AREAS



WASHINGTON

PROGRESS REPORT
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COOPERATIVE STATE-FEDERAL STUDY OF
POLLUTION OF NAVIGABLE WATERS
PUGET SOUND, STRAIT OF JUAN DE FUCA
AND
THEIR TRIBUTARIES AND ESTUARIES
STATE OF WASHINGTON

INTRODUCTION

On the basis of a written request to the Secretary of Health, Education, and Welfare (presently under the jurisdiction of the Secretary of the Interior) from the Governor of the State of Washington dated November 22, 1961, the Secretary called a conference, as provided by the Federal Water Pollution Control Act, on the matter of pollution of the navigable waters of Puget Sound, the Strait of Juan de Fuca, and all estuarine waters and waters tributary thereto in the State of Washington.

The first session of the conference was held January 16-17, 1962, in Olympia, Washington. Conferees representing the Washington State Pollution Control Commission and the U. S. Department of the Interior, Federal Water Pollution Control Administration (formerly the U. S. Department of Health, Education, and Welfare, Public Health Service, Division of Water Supply and Pollution Control) were in attendance. The Secretary appointed Mr. Murray Stein, Assistant Commissioner for Enforcement, Federal Water Pollution Control Administration, chairman of the conference.

Following the conference, the Secretary, on March 14, 1962, furnished the conferees with a Summary of Conference, as required by the Federal Water Pollution Control Act. Item 9 provides that the Washington State Pollution Control Commission and the Federal Water Pollution Control Administration will develop a joint program to carry out such investigations and studies as are required. The summary also provides that the U. S. Department of the Interior will prepare progress reports on the programs of investigation and study developed by the Washington State Pollution Control Commission and the Federal Water Pollution Control Administration. This report covers the progress for the period of October 1, 1965 through June 30, 1966. Information contained in this report has been submitted jointly by the Washington State Pollution Control Commission and the Federal Water Pollution Control Administration, Portland, Oregon.

JOINT PROGRAM OF THE WASHINGTON STATE POLLUTION CONTROL COMMISSION AND THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

Representatives of both the Washington State Pollution Control Commission and the Federal Water Pollution Control Administration have developed a joint program to carry out such investigations and studies as are required by the Conference to determine the effects of the discharge of sulfite pulp and paper mill wastes on the waters of Puget Sound and resources contained therein. The geographical areas of Puget Sound being studied are Port Angeles, Everett-Port Gardner, Bellingham, and Anacortes.

Investigations and studies include the following:

1. Engineering surveys which include a series of in-plant surveys at each of the sulfite pulp and paper mills in question to determine the quantity and quality of the wastes being discharged.
2. Oceanographic studies to determine the dispersion, travel, and persistence of pollutants in relation to currents and water movement.
3. Biological and related chemical studies of the marine environment and its living marine resources.
4. Tabulation of all sources of waste waters discharged in the study area and collection of additional data where the types of waste and/or point of discharge might affect study results.
5. Economic and legal investigations related to the over-all pollution problem.

The status of the study program is as follows:

1. Pulp and Paper Mill Survey Program

Even though the in-plant survey program of the seven pulp and paper mills in question had been completed, an additional survey was run at the Scott Paper Company, Everett, to reevaluate the suspended solids loading and to determine the effectiveness of the recently installed clarifier system. This additional data is being evaluated for inclusion in the final project report.

2. Oceanographic Studies

The primary oceanographic and related water quality study program in the Bellingham, Anacortes, Everett, and Port Angeles areas is completed. Final evaluation of these data has been made and is being summarized for inclusion in the final project report.

3. Biological Studies

a. Plankton Productivity Studies

Computer processing of the data from this study has been completed and preliminary evaluations made. There appears to be an inhibition of productivity rate in the presence of moderate SWL concentrations, and an increase in DO consumption. The numbers of phytoplankton cells are not reduced, nor is there an obvious change in the community structure; however, the amount of chlorophyll A present in the cells is diminished.

b. Oyster Studies

The final condition factor analysis was made, completing the field portion of the adult oyster study program. The data have been tabulated and are being evaluated for summarization into the final project report.

Dr. Gerald Paulik, project consultant with the University of Washington, College of Fisheries, has completed his statistical analysis of the oyster larvae data. These data are being incorporated into the final project report.

Dr. S. D. Lu, project consultant with Oregon State University, Department of Agricultural Chemistry, is analyzing samples of oyster tissue for concentrations of organic residues. There is an indication that fractions of pulp and paper wastes are being concentrated and retained within certain organs of the oyster. Work is continuing on this project.

c. Benthic Studies

Benthic samples of fauna and associated sediments were collected from Whatcom Waterway and vicinity to supplement previously collected samples from that area. Identification, enumeration, and evaluation of these samples have been completed and incorporated in the project report.

d. Fish Egg Study

Further study on English Sole eggs was conducted at the Friday Harbor Laboratory of the University of Washington. These studies further described the effects of SWL on the eggs and contributed much new information on the specific gravity of the eggs, in relation to their location in areas of Puget Sound. Concurrent field sampling surveys delineated the occurrence and distribution of flatfish eggs in the study areas.

e. Bottom-Fish Tumor Investigation

Two more cruises were made during the report period to complete this study. As indicated by earlier results, there is a strong

suggestion that a higher incidence of tumor-bearing fish is found in specific portions of the estuary. Causal relationships are not as yet evident.

4. Personnel

During the report period the following personnel changes have been made in the Federal Water Pollution Control Administration enforcement staff:

Harry E. Brown, Boat Operator - resignation

Bill C. Ric Kards, Boat Operator - on duty

Rita A. Chicoine, Secretary - resignation

Kathleen E. Bell, Secretary - on duty

Gary N. Dietrich, Deputy Director - conversion from Commissioned Corps to Civil Service

Ralph H. Scott, Industrial Wastes Engineer - transfer to Pacific Northwest Water Laboratory, Federal Water Pollution Control Administration, Corvallis, Oregon

5. Equipment

The project research vessel, the HAROLD W. STREETER, underwent extensive repairs during the report period. Additional stringers and inner planking were installed and the vessel was completely repainted. The main engine was completely overhauled after 6,000 hours of operation.

STATUS OF TREATMENT FACILITIES FOR INDUSTRIAL WASTE

The Washington State Pollution Control Commission's pollution control program for the following mills calls for the reduction in the settleable solids losses and the development of adequate discharge control techniques. Final decisions on the requirements for the disposal of sulfite waste liquors from these mills will be deferred until the field investigations and final report are completed.

Progress made by these mills during this period, based upon requirements set forth in the permits issued on December 18, 1962, is given below:

1. Weyerhaeuser Company, Everett

a. A meeting was held in Olympia on October 14, 1965 between company officials and representatives of the Pollution Control Commission to review the mill's achievements in reduction of fiber losses and to discuss their present pollution abatement program.

b. The outfall evaluation study for the design of a new submarine outfall at the Everett Sulfite Mill has been evaluated by the staff of the Pollution Control Commission. The study, which was conducted in compliance with item 3 of waste discharge permit number 1866, produced results which were nonconclusive in the determination of the proper location for the proposed new outfall line. Further work with the outfall design is to be delayed pending the anticipated near-completion of the State-Federal Puget Sound studies. The project will again be reviewed at that time.

c. A meeting was held in Everett on December 21, 1965 between company officials and representatives of the Pollution Control Commission. The meeting was requested by company officials to discuss present losses of settleable solids from the mill and the future reduction of significant fiber losses from major fiber-carrying streams. An inspection was made of facilities for pollution abatement which have been constructed at the mill during the past year.

d. An effluent sample from the SO_2 stripping tower was collected on March 1, 1966 and delivered to the Friday Harbor Laboratory for use in further bioassay studies by Federal Water Pollution Control Administration personnel.

e. Rejects from the bleached tailing screens which were formerly sewered are now pumped to the wetlap fiber recovery system at the Sulfite mill, further reducing solids losses discharged through the joint Scott-Weyerhaeuser deep diffuser outfall line to Port Gardner Bay.

f. Flow to the Kraft mill lagoon has been reduced by approximately two million gallons per day through the installation of a diffusion line discharging recovery stack scrubber effluent to the Snohomish River. Retention time in the lagoon has been increased about 9%.

g. A meeting was held June 14 to discuss permanent sanitary waste treatment for the Weyerhaeuser Kraft and Timber mills. An engineering report on the proposed facilities has been requested.

h. Company officials are financing with Scott Paper Company further field studies in the life of the English sole. These additional studies are to be conducted under the direction of Dr. English of the University of Washington in continuation of his previous studies.

2. Scott Paper Company, Everett

a. The major activity in pollution abatement reported by the mill again centered around final connections and operation of the new clarifier system. (Item 1 of pulp mill waste discharge permit number 1865 and paper mill waste discharge permit number 1862.)

All high solids waste streams are now being given primary treatment and emphasis has been placed on optimizing and evaluating equipment performance. Information on the clarifier installation was released to the industry in technical papers presented at the National Council for Stream Improvement meeting in Portland on October 27, 1965, and at the Pacific Northwest Pollution Control Association meeting at Vancouver, B. C. on November 3, 1965.

b. The primary clarifier is removing greater quantities of settleable solids than previously measured and reported in the cooperative in-plant surveys. This has been attributed to waste loadings from the barking plants. Mill personnel believe the differences noted in survey and prior reports are due principally to the inadequacy of techniques used in sampling non-homogeneous streams of this nature.

A post in-plant survey meeting was held on June 23 between mill personnel and State and Federal technical representatives to review data obtained in the above survey. Results during the three-day survey period indicate approximately 85 percent reduction of settleable solids losses through the installation of the clarifier and centrifuge.

Emphasis of mill personnel at the Everett plant continues to be on the evaluation of clarifier operation and in further improvement of clarifier performance.

c. A new step in screening recovery was fully implemented during 1965 and was described to the industry in a meeting of Pulp Industry Management Association at Seattle on December 3, 1965.

This facility fractionates usable fiber bundles from knotter screen rejects. These bundles are further disintegrated with mild caustic treatment and returned to the normal pulp process flow in the sulfite blowpits. Additional pulp production from this recovery is equivalent to the salvage of 20 tons of wood each day.

d. Scott Paper Company, in cooperation with Weyerhaeuser Company, has established an extended program of bottom trawl and propagation studies in Port Gardner Bay to determine any influence on productivity of English sole from existing pulp and paper mill discharges.

These studies are being directed by Dr. T. S. English, Associate Professor of Oceanography of the University of Washington's faculty. Results of the studies to date were presented by Dr. English at the November 3-5 meeting of the Northwest Pollution Control Association at Vancouver B. C.

3. Simpson-Lee Paper Company, Everett

a. Company officials report no additional items of achievement in pollution abatement at this time.

b. On June 8 a meeting was held for clarification of data submitted with monthly effluent characteristics reports. The sampling of effluents was temporarily discontinued during completion of repairs and dredging in the waste lagoon to increase its capacity and facilitate its operation.

4. Fibreboard Paper Products Corporation, Port Angeles

a. Company officials report no major pollution abatement progress achieved during the period covered by this report.

b. One minor item that they neglected to report in the early part of last year was included. Namely, a new whitewater system has been installed which allows the use of additional whitewater for washing blow pits. The recovery of previous fiber losses attributed to the installation amounts to approximately 7,140 pounds per month.

5. Rayonier, Inc., Port Angeles

a. Company officials reported no items of achievement in pollution abatement during the period covered by this report.

b. Pollution Control Commission personnel continue to work with the City of Port Angeles and their consulting engineers in the design of municipal waste treatment facilities. The engineers propose location of the necessary treatment plant near the Rayonier mill. Consideration is being given for use of an outfall line to Port Angeles Harbor by the City and Rayonier jointly.

6. Scott Paper Company, Anacortes

a. Scott Paper Company personnel have continued to participate with State and Federal personnel in survey work conducted by the regulatory agencies by supplying effluent samples from the Anacortes mill for use in the expanded bioassay studies conducted at Friday Harbor by the Federal Water Pollution Control Administration during 1966.

b. Piping changes have been completed at the Anacortes mill to dispose of rejects from the brown stock centricleaners by land fill. These rejects have previously been discharged with general mill effluents through the Guemes Channel diffuser.

7. Georgia-Pacific Corporation, Bellingham

a. On December 20, 1965 representatives of the Pollution Control Commission met with company officials in Bellingham to review the mill's achievements in reduction of fiber losses and to discuss their present pollution abatement program.

An inspection of the Tissue Products Division and the new Sulphuric Acid Plant was also made. Attention was called to permit condition item 7 of waste discharge permit number 1980 which calls for the reduction by October 1, 1966 of suspended combustible solids losses from the paper mill to a maximum allowable limit of 20 pounds per ton of final product.

b. A meeting with company officials was held in Olympia on January 20, 1966 to discuss proposals for reduction of settleable solids losses in compliance with item 7 of waste discharge permit number 1980.

c. Company officials received a letter from the Director of the Pollution Control Commission informing them of discussions at the Commission's meeting on February 1, 1966 concerning water quality standards and this enforcement program for Bellingham Bay.

d. A meeting was held in Bellingham on March 2, 1966 to review initial progress with a recent program to reduce settleable solids losses from the mill's Tissue Products Division. This program has resulted in continued reductions in these solids losses during the first and second quarters of 1966. Losses in pounds per ton of final product have been reduced almost one-half during this period.

Approximately $100,000 worth of new equipment has been ordered for installation during the third quarter of 1966 to continue this program.

e. Mill personnel report the completion of the $750,000 expansion program in the Lignin Products area with the installation of the thermocompression evaporator, the number 5 spray dryer and related equipment. These units are now in full productive operation.

f. Extensive studies under the direction of Dr. Tom English have been initiated in cooperation with the University of Washington relative to the effects of Bellingham Bay water quality on a flatfish development.

WASHINGTON STATE POLLUTION CONTROL COMMISSION PROGRAM

The Washington State Pollution Control Commission is proceeding with its program for controlling waste discharges from the remaining municipal, industrial, and other sources in the Puget Sound and the Strait of Juan de Fuca in order to prevent pollution of such waters. This program includes:

1. Compilation of inventories of wastes discharged.
2. Determination of pollution conditions in the receiving waters.
3. Notification of each waste discharger as to pollution prevention and control needs.
4. Review of plans and specifications, inspection of construction of municipal treatment works and provision for instruction to treatment works operators.
5. Review of applications for waste discharge permits and conducting of follow-up inspections after permits are issued.

The Washington State Pollution Control Commission supervises these programs and establishes dates for completion and operation of required waste control facilities.

The following list of approved sewerage and sewage treatment projects is indicative of the general progress in eliminating pollution by domestic sewage. In each case, these projects will provide treatment for sewage, either through construction of new treatment facilities or by connection to existing sewage treatment plants.

1. The following municipal projects have been approved by the Washington State Pollution Control Commission during this report period.

October

Des Moines Sewer District - Contract 64-8, U.L.I.D. No. IV, Change Order No. 1

Newport Hills Sewer District - Sewer extension

Newport Hills Sewer District - Malibu Park extension

Town of Lake Forest Park - Sanitary sewer system

Town of Lake Forest Park - Sanitary sewer system - engineering report

Town of Lake Forest Park - Ordinance No. 58 to Comprehensive Plan

Lakehaven Sewer District - Twin Lakes Addition

City of Tacoma - Sewer L.I.D. No. 3601

Southwest Suburban Sewer District - Miller Cr. Outfall, Change Order No. 1

City of Bremerton - Ostrich Bay sewerage project, Addendum No. 1

City of Seattle - 11th Ave. S. W. et al. - Sanitary sewers and storm drain

Lake Hills Sewer District - U.L.I.D. No. 7, Rosemont Beach sewerage project

Port of Seattle - Pier 5, Office and lunchroom building relocation sewage discharge facilities

Port of Seattle - Pier 5, United Fruit Company office building - sewage discharge facilities

Lakehaven Sewer District - U.L.I.D. No. 6 and U.L.I.D. No. 8

Lockheed Shipbuilding and Construction Company - sewage discharge facilities Plant No. 2, Shipway 21

Port of Seattle - Transit Shed No. 3, Temporary sewage disposal arrangement

Metro - Contract 65-12, two trailer mounted engine generator sets

October (cont.)

Bechtel Corp. (Intalco Aluminum) - Sanitary sewer system

South Sound Shopping Center - Sewage treatment plant revision

Des Moines Sewer District - Contract 64-4, Change Order No. 3, Contract 64-5, Change Order No. 2

November

Town of Castle Rock - Installation for sanitary sewers, incasement pipe under railroad and sewerage pumping station for the Studebaker Road vicinity

City of Redmond - East Crescent Lane sanitary sewer system

City of Sumner - South Sumner area sanitary sewer trunk system

City of Tukwila - Developer extension No. 4 - sanitary sewers

City of Tacoma - Sewer L.I.D. No. 3608

Southwest Suburban Sewer District - Miller Creek Submarine Outfall

City of Edmonds - Comprehensive sewerage plan

City of Snohomish - Increasing capacity of sewage stabilization pond

City of Redmond - Strattonwood sanitary sewer

Eastgate Sewer District - Plat of Somerset No. 14 - sewers

Lakehaven Sewer District - Steel Lake Village sanitary sewer

City of Renton - Sanitary sewer L.I.D. No. 225

Northeast Lake Washington Sewer District - Plat of Poplar Lane - sanitary sewers

Town of Steilacoom - 1965 Sewerage Construction - Lift Station 1 & 2

City of Tacoma - L.I.D. No. 3604

Des Moines Sewer District - U.L.I.D. No. 6 and 18th Ave. South

November (cont.)

Beacon Hill Sewer District - Sanitary trunk and lateral sewers

Beacon Hill Sewer District - Nevada Drive Interceptor sewers

Ronald Sewer District - U.L.I.D. No. 8, Contract I-emergency construction

Lake Hills Sewer District - Rockwood Lane No. 2 - sewer extensions

Mercer Island Sewer District - Lake Firs sewer extension

City of Houghton - Preliminary Engineering Report - sanitary sewer system

City of Houghton - L.I.D. No. 5 sanitary sewer

Lake Hills Sewer District - Stillwell Estates - sewer extension

Lakehaven Sewer District - Camelot Manor - sewer extensions

Southwest Suburban Sewer District - Comprehensive Plan Amendment

December

City of Bremerton - Change Order - Ostrich Bay sewerage

City of Longview - Sewerage improvements to serve the west portion of Longview

City of Houghton - Arterial Improvement Program

City of Tacoma - Sewer L.I.D. No. 3605

Lake Hills Sewer District - Delbrook sewer extension

Lake Hills Sewer District - U.L.I.D. No. 10

Metro - Contract 65-10, West Duwamish Interceptor

Metro - Contract 65-11, West Duwamish Interceptor Regulators and pump stations

Metro - Contract M12-65, Sewer connection and water service

Metro - Contract 65-6, Elliott Bay Interceptor, Section 8

December (cont.)

City of Auburn - Sewage Lagoon Modifications

Des Moines Sewer District - Change Order No. 1 Comprehensive Sewerage Project Contract 64-6A

January

Lake Hills Sewer District - Sewer extension for Plat of Bretton Wood No. 4

City of Renton - Proposed sewer local improvement district

City of Longview - Extension of waterline and sanitary sewers

City of Tacoma - Proposed extension, sanitary sewer system for Plat at Claremont Westgate Division No. 2

Town of Sequim - Construction of a sewerage treatment works

City of Olympia - Alterations and modifications to the sewage treatment plant

Lake Hills Sewer District - Proposed sewer system for Brae Burn

City of Kent - Addendum No. 2

City of Redmond - Brae Burn Addition, pump station and sanitary sewer extension

February

City of Tacoma - North End Sewage Treatment Plant

Maple Grove Sewer District - Comprehensive plan and preliminary design

Snohomish - proposed sewer extension between Larson Road and Ferguson Road

Des Moines Sewer District - Contract 64-4, Change Order No. 4

East Mercer Island Sewer District - Sanitary sewer extension in U.L.I.D. No. 2

University Place Pierce County - Sewage disposal in the planned unit development of Beckonridge

Metro - Contract 65-13 - Swamp Creek Trunk

Lake Hills Sewer District - Proposed sewer system of Brae Burn

February (cont.)

Redmond - Brae Burn Addition - Pump station and sanitary sewer

City of Tacoma - Sewer L.I.D. No. 3607 and 3611, Sanitary sewer storm drain

Town of Fife - Proposed sanitary sewer system

Hazel Dell Sewer District - Sewage treatment plant, interceptor

Poulsbo - Plat of Cedar Park proposed sanitary sewer extension

Tuckwila - Sanitary sewer crossing State Highway 5-M

March

Tacoma - Local Improvement District No. 3613

Val Vue Sewer District - Proposed sanitary sewer line

Des Moines Sewer District - Contract 64-5, Change Order No. 3

Southwest Suburban Sewer District - Change Order No. 1, Miller Creek Sewage Treatment Plant

Department of Engineering City of Seattle - Lake City Lift Station Outfall

Lakehaven Sewer District - Twin Lakes Division No. 2 - Sewer main extension

Metro - Contract No. 66-3 Elliott Bay Interceptor and the South Magnolia Trunk

Friday Harbor - Sewerage system improvements

Tacoma - Proposed sanitary sewage lagoon

La Conner - Sewage treatment and collection facilities

Metro - Change Order No. 4, Contract 63-5, Lake City Tunnel

Des Moines Sewer District - Contract 64-2, Change Order No. 3

Bremerton - Ostrich Bay Sewerage Project, Change Orders 3 & 5

Poulsbo - L.I.D. No. 1 South End sanitary sewer

Port Townsend - Sewerage system improvements

April — Olympic View Water District, Snohomish County - Sanitary sewerage system

Friday Harbor - Sewerage project

Lakehaven Sewer District - Lakota Sewage Treatment Plant and outfall

Flaming Geyser Park Development - Sewage treatment facilities

Tacoma - Sanitary sewer on South 12th Street

Fife - Sanitary sewer system

Bremerton - Ostrich Bay Sewerage project

Kent - Sewer service in North Kent

Seattle - 26th Ave. southwest et al., paving

Newport Hills Sewer District - Conner Apartments sewer extension

Northeast Lake Washington Sewer District - Proposed Plat of Fireside Land No. 2

Northeast Lake Washington Sewer District - Plat of Kingsgate Highlands Division No. 2

Lake Hills Sewer District - Maples and Cottonwood sanitary sewer

Lake Hills Sewer District - Bel-Zoan-Are sanitary sewer extension

Southwest Suburban Sewer District - U.L.I.D. No. 9 and 10

Mercer Island Sewer District - Proposed sewer main extension in Millers Westwood Addition in Mercer Island Sewer District

Newport Hills Sewer District - Hazelwood - Coal Creek Trunk sewer line

Des Moines Sewer District - Additions and betterments to comprehensive plan

Metro - Addendum No. 2

Lakehaven Sewer District - Laurelwood North extension to Lakehaven

April (cont.)

Lakehaven Sewer District - Camelot Division "J" - sanitary sewers

Lake Hills Sewer District - U.L.I.D. No. 7

Southwest Suburban Sewer District - Lateral sewer extension

Cascade Hills - Sewer main extension

Port of Seattle - Salmon Terminal Warehouse temporary sewer

Metro - Contract 66-4; Lyon Creek and McAleer Creek, Section 1

Bellingham - Alabama Hill - Sylvan sewer extension

Tacoma - Ruston Way sanitary sewer interceptor

Battleground - Extension to the sewage collection system

May

Southwest Suburban Sewer District - Miller Creek Outfall

Metro - Contract No. 66-3; Addendum No. 1

City of Auburn - West Interceptor sewer

Lake Hills Sewer District - U.L.I.D. No. 7 - Rosemont Beach

Southwest Suburban Sewer District - Lateral sewer extensions

Metro - Contract M1-66; Demolition of the Kirkland Sewage Treatment Plant

Lakehaven Sewer District - Continental Manor Addition - sanitary sewers

Lakehaven Sewer District - Sanitary sewer disposal plan profile for Steel Lake Village Division No. 3

Mercer Island Sewer District - sewer main extension in Rogers Holly Lane Addition

Olympia - Black Lake Boulevard water and sewer system

Snoqualmie - Sewerage system and treatment facilities

Mercer Island Sewer District - Proposed sewer extension in Park Ridge Addition

Cascade Sewer District - Plat of Cascade Hills No. 7

May (cont.)

Bellevue - Sanitary sewers - Cherry Crest area

Metro - Contract 66-3, Addenda 3, 4, and 5

Metro - Contract 66-4, Addendum 1

Cascade Sewer District - Sewer plan for the Plat of Renton Park Division No. 3

Twin Lake No. 2 - Lakehaven Sewer District - Sewage Pump Stations

Pierce County - Beckonridge Division No. 2, Sanitary sewers

Edmonds - Sanitary sewers and appurtenances

June

Bainbridge Island, Kitsap County - Plat of Wing Point North sanitary sewer and storm drainage

Metro - Contract 65-9, Entai Interceptor

Newport Hills Sewer District - No. 11 Sanitary sewer extension

Seattle Golf Club - Sanitary sewers

Battleground - Extensions to sanitary sewage system

Bremerton - Ostrich Bay sewerage project, Change Order No. 6

Lakehaven Sewer District - Springwood Park Extension

Redmond - Sanitary sewer project

Newport Hills Sewer District - Newport Woods sanitary sewer extension

Eastgate Sewer District - Additions and betterments to comprehensive plan

Lake Hills Sewer District - Skyridge No. 2 sewer extension

Bryn Mawr Lakeridge Sewer District - Penovich Lake Vista No. 2 sewer plan

Seattle - Diagonal Ave. South et al., storm drain trunk

Metro - Contract 66-5, Yarrow Bay Pumping Station

June (cont.)

Metro - Contract 66-1 Juanita Interceptor, pumping station, force mains, and trunk sewer

Seattle - Diagonal South et al., and storm drain trunk Unit No. 2

Ronald Sewer District - U.L.I.D. No. 9, Contract I

Ronald Sewer District - U.L.I.D. No. 8, Contract II

Bellevue Sewer District - Sanitary sewer design - Plat of Westerly

Metro - Contract No. 63-2, West Point Sewage Treatment Plant

Northeast Lake Washington Sewer District - Sanitary sewers

Lake Forest Park - McAleer sanitary trunk sewer

Kent - Contract A, North sewer system, Contract D, north sewer system, Contract F, pump stations

Lynnwood - Sewerage project for the northeast area

Edmonds - L.I.D. No. 145, 8-inch sanitary sewer

Metro - Change Order No. 1, Contract 65-11 West Duwamish Interceptor

2. The following industries have received permanent waste discharge permits and are operating in compliance with the programs of the Commission:

October

San Juan Islands Cannery, La Conner

Tim Corliss & Son Co., Sumner

Kirkland Custom Cannery, Kirkland

Reichhold Chemicals, Inc., Tacoma - temporary replaced by permanent

Berryland Packers, Inc., Snohomish

China Poultry Co., Seattle

November	Libby, McNeill & Libby, Mount Vernon
	Keypoint Oyster Co., Poulsbo
	Hisata Oyster Co., Olympia
	Seaport Fish Co., Seattle
	Wallace Poultry Co., Bellingham
	Evans Products Co., Aberdeen - temporary replaced by permanent
December	Shell Oil Co., Anacortes
	Ferry Brothers, Inc., Ferndale - temporary replaced by permanent
	Western Farmers Assn., Mount Vernon
	Clallam County Road Dept., Port Angeles
	Mount Adams Veneer Co., Randle
January	Anderson and Eby, Edmonds
	Chico Gravel, Inc., Bremerton
	Hercules Powder Co., Olympia
	The Bunker Hill Co., Seattle
	Cadman Gravel Co., Redmond
	Federal Meat Co., Tacoma
	Smith Brothers Dairy, Kent
	Superior Refineries, Inc., Woodinville
	Ideal Cement Co., Grotto
	Olympic Steel Works, Seattle

February	Riverview Farms, Renton
	Ferguson Canning Co., Snohomish
	Snohomish Sand & Gravel, Snohomish
	Foremost Dairies, Inc., Fort Lewis
	Kelley, Farquhar & Co., Tacoma
	Kelley, Farquhar & Co., Puyallup
	Union Pacific Railway Co., Tacoma
	R. G. Haley International Corp., Bellingham
	The Boeing Co., Marysville
	Willis, Rogers & Pearson Lumber, Sedro Woolley
	Graystone of Shelton, Shelton
	Pioneer Sand & Gravel Co., Seattle
	Hydraulic Supply Manufacturing Co., Seattle
	Rogers Foundry, Inc., Seattle
	Pacific Glue Manufacturing Co., Seattle
	Center Car Wash, Bellevue
	25¢ Car Wash, Federal Way
March	Clark County Dairymen's Cooperative, Battleground
	Silver Springs Brewing Co., Tacoma
	Summitt Timber Co., Darrington
	Linsteads Silversmiths, Inc., Seattle
	Palmer Coking Coal Co., Black Diamond
	Stoneway Concrete, Inc., Renton
	Reilly Tar & Chemical Corp., Renton
	Seattle Foundry Co., Inc., Seattle

March (cont.)	Sweden Freezer Manufacturing Co., Seattle
	Wyckoff Co., Seattle
	Miller Packing Co., Renton
	Arlington Sand & Gravel Co., Arlington
	Western Farmers Association, Seattle
	Western Steel Casting Co., Seattle
	Henry House Packing Co., Seattle
	Corbit's Poultry, Tacoma
	Vitamilk Dairy, Inc., Seattle
	Kent Engineering, Kent
April	Skagit Corporation, Sedro Woolley
	Bethlehem Steel Co., Seattle
	Bethlehem Steel Co., Seattle
	Puyallup & Sumner Sales, Monroe
	Pacific Car & Foundry Co., Seattle
	Kitsap-Bremerton Dairymen's Assn., Bremerton
	Glacier Sand & Gravel Co., Steilacoom
	Bar Sand & Gravel, Sedro Woolley
	Edinger Gravel Co., Kenmore
	Auburn Dairy Products, Auburn
	Fisher Flouring Mills Co., Seattle
	Air Reduction Pacific Co., Seattle
	Vitafreze Co., Kent

May	Associated Sand & Gravel Co., Everett
	Bugge Canning Co., Sequim
	Halibut Producers Cooperative, Seattle
	Pacific Rendering Co., Seattle
	Nick's Poultry, Seattle
	Price's Dairy, Port Orchard
	St. Regis Paper Co., Tacoma
	Valley Packing Co., Puyallup
June	Blau Oyster Co., Bow
	Hilton Canning Co., Seattle
	Rainier Asphalt Paving Co., Tukwila
	Great Northern Railway, Everett
	Industrial Plating Works, Inc., Seattle
	Libby McNeill & Libby, Kent
	Blaine Fish Products Co., Blaine
	J. A. Jack & Sons, Inc., Seattle
	Thorp's Meats, Snohomish
	Cascade Ready Mix, Burlington - temporary replaced by permanent